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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,975	12/14/2000	Megumi Yamada	GRA2.PAU.02	8296

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EXAMINER
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BLAU, STEPHEN LUTHER

ART UNIT	PAPER NUMBER
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3711

DATE MAILED: 05/20/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/736,975

Applicant(s)

YAMADA, MEGUMI

Examiner

Stephen L. Blau

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-- **Th MAILING DATE of this communication app ars on th cov r sh et with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 17-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14, 19-20, 24-34, 38-40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu.

Preece discloses a layer of metal containing prepreg wrapped at butt of a shaft (Col. 3, Lns. 39-47, Ref. No. 10), a layer of non-metal fiber prepreg wrapped adjacent to a layer of metal-containing prepreg throughout a length of a shaft (Ref. No. 11, Col. 3, Lns. 29-38), a layer of metal-containing prepreg being an inner most layer (Claim 1), a layer of non-metal fiber prepreg being wrapped over the inner most layer (Figs. 1A-1B), a metal having a specific mass greater than 7 g/cm<sup>3</sup> in the form of copper (Col. 3, Lns. 39-45), a metal powder (Col. 3, Lns. 39-47) dispersed (Col. 4, Lns. 60-67) in a synthetic resin, and an epoxy resin (Col. 4, Lns. 33-40), an inner-most layer of metal-containing prepreg sheet (Col. 3, Lns. 39-47) is located along a length of a shaft between at butt end of the shaft and 40 % of an overall length of a shaft in the form of about 25-30 % of the defined length of the shaft (Fig. 1A), the dimensions and location of one or more plies of leaded film may be used to define and /or adjust in part the overall weight, swing

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weight and balance point of the shaft (Col. 2, Lns. 23-34), multiple layers used in forming a shaft (Ref. Nos. 18, 20, and 22) and conventional means of weighting prepreg uses tungsten powder (Col. 1, Lns. 49-60). An artisan skilled in the art of forming shafts with sufficient weighting and strength would have selected a suitable number of metal-containing prepreg layers in which a second layer is included.

Preece lacks a layer of metal containing prepreg wrapped at a tip of a shaft, an inner-most layer of metal-containing prepreg is located along a length of a shaft between at tip end of the shaft and 40 % of an overall length of a shaft, the layer of metal-containing prepreg being a metal fiber, and a Tungsten powder.

Hsu discloses adding a weighted segment at a tip end of a shaft for lowering the position of the center of gravity of a shaft (Abstract), longitudinal filaments for reinforcement (24) and using metal filaments to weight a tip end of a shaft (Col. 1, Lns. 56-66). In view of the patent of Hsu it would have been obvious to modify the shaft of Preece to have a layer of metal containing prepreg wrapped at a tip of a shaft and an inner-most layer of metal-containing prepreg is located along a length of a shaft between a tip end of the shaft and 40 % of an overall length of a shaft instead of at the butt end of a shaft in order to lower the center of gravity of a shaft and as such place more mass near the point of impact between a head and a ball maximizing the transfer of energy to a ball. In addition, in view of the patent of Hsu it would have been obvious to modify the shaft of Preece to have fibers instead of powders to add not only weight but also strength to a tip end of a shaft.

It would have been obvious to modify the shaft of Preece to have a second layer of metal-containing prepreg in order to have additional strength and weight at a tip end of a shaft.

It would have been obvious to modify the shaft of Preece to have a metal powder being tungsten to add more weight to a tip end of the shaft for the same volume of material added.

3. Claims 1-2, 6-13, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable under Preece in view of Hsu and Kusumoto (6,306,047).

Preece lacks a non-metal fiber prepreg forming a generally non-inflected inner surface throughout the length of the shaft, a metal-containing prepreg and the non-metal fiber prepreg together form an inflected inner surface, an infected inner surface has a through hole being smaller in a portion defined by a metal-containing prepreg than in a portion defined by a non-metal fiber, and a second layer of metal-containing prepreg.

Kusumoto discloses a mandrel having a tip surface being recessed relative to a body surface of the main body of the mandrel (Fig. 1) and a shaft having a generally constant taper throughout the length of a shaft. Kusumoto does not specifically state a layer overlaying a innermost tip reinforcing layer would have a generally non-inflected inner surface throughout the length of the shaft however clearly an artisan skilled in the art of shaping a mandrel to effect the shape of the outer layers with a inner layer which is only along a portion of a shaft would have shaped a mandrel at a portion where an

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inner layer is located to shape an outer layer in which an adjacent outer layer has a generally non-inflected inner surface throughout the length of the shaft is included. In view of the patent of Kusumoto it would have been obvious to modify the shaft of Preece to have mandrel with a recess at tip end and a non-metal fiber prepreg forming a generally non-inflected inner surface throughout the length of the shaft in order to form an outer surface of a shaft that has a generally constant taper throughout the length of a shaft. As such a metal-containing prepreg and the non-metal fiber prepreg together form an inflected inner surface and an inflected inner surface has a through hole being smaller in a portion defined by a metal-containing prepreg than in a portion defined by a non-metal fiber

See the paragraph above for elements of structure previously rejected by Preece in view of Hsu.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu and Kusumoto (6,306,047) as applied to claims 1-2, 6-13, and 17-18 above, and further in view of Takemura.

Preece lacks a shaft having a mass of about 80-130 grams. Takemura discloses a composite shaft having a weight of 80-85 grams (Col. 9, Lns. 10-17). In view of the patent of Takemura it would have been obvious to modify the shaft of Preece to have a shaft weight of 80-85 grams in order to have a swing weight for a specific player's strength which will minimize fatigue while playing a round of golf yet maximize the amount of energy transferred to a ball at impact.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu and Kusumoto (6,306,047) as applied to claims 1-2, 6-13, and 17-18 above, and further in view of Lezatte.

Preece lacks a center of mass located 45-51 % when measured from a tip end. Lezatte discloses a center of mass located 45-51% when measured from a tip end (Col. 3, Lns. 30-38). In view of the patent of Lezatte it would have been obvious to modify the shaft of Preece to have a center of mass located 45-51% when measure from a tip end in order to have a shaft with a specific swing weight which fits the strength of a golfer.

6. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu and Beach.

Preece lacks an EI value of about 3 to 4.5 kgfm<sup>2</sup> at 200 mm from a tip. Beach discloses an EI value at a tip portion of 4.59 kgfm<sup>2</sup> (Claim 3). Clearly an artisan skilled in the art of selecting a suitable flexibility and inertia for a specific swing of a golfer to maximize flying distance would have selected a suitable EI value in which 4.5 kgfm<sup>2</sup> at 200 mm from a tip is included. In view of the patent of Beach it would have been obvious to modify the shaft of Preece to have an EI value of about 4.5 kgfm<sup>2</sup> at 200 mm from a tip end in order to utilize the flexibility of a tip end of a shaft to maximize the velocity of a tip end of a shaft at impact for a specific strength golfer.

See paragraphs above for elements of structure previously rejected by Preece in view of Hsu.

7. Claims 21 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu as applied to claims 14, 19-20, 24-34, 38-40 and 41 above, and further in view of Takemura.

See paragraphs above for elements of structure previously rejected by Preece in view of Takemura.

8. Claims 22 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu as applied to claims 14, 19-20, 24-34, 38-40 and 41 above, and further in view of Lezatte.

See paragraphs above for elements of structure previously rejected by Preece in view of Lezatte.

9. Claims 23 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Preece in view of Hsu as applied to claims 14, 19-20, 24-34, 38-40 and 41 above, and further in view of Beach.

See paragraphs above for elements of structure previously rejected by Preece in view of Beach.

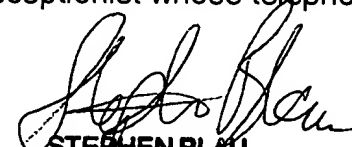


***Response to Arguments***

10. The argument that the Preece does not disclose a metal-containing prepreg layer wrapped at a tip of a shaft is agree with and as such the finality of the office action has been removed and a new rejection has been made. With respect to claim 33, the argument that it is improper to combine the references of Preece and Hsu since Preece fails to disclose anything but powder and Hsu discloses an outermost layer is disagreed with. Both Preece and Hsu disclose how to weight a layer on a shaft. It would be obvious to a skilled artisan to use either method. Preece discloses how only to add weight and Hsu discloses how to add strength and weight. Preece implies that other locations can be weighted other than the butt end of a shaft and Hsu discloses a motivation on why to weight the tip end of a shaft.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Blau whose telephone number is (703) 308-2712. The examiner is available Monday through Friday from 8 a.m. to 4:30 p.m.. If the examiner is unavailable you can contact his supervisor Paul Sewell whose telephone number is (703) 308-2126. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858.

  
**STEPHEN BLAU**  
**PRIMARY EXAMINER**